

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

2 8

0316

36618

DATE: OCT 6 1983

SUBJECT: PEER REVIEW: Sampling Investigation Report, SAAD Site, Nashville, TN

FROM: Hydrogeologist, Groundwater Section
Water Supply BranchTO: Fred Strout, OSC
Emergency & Remedial Response Branch

I have completed a review of the investigation reports generated from the installation of monitoring wells (TDD #F4-8204-06), the May 1982 sampling (TDD #F4-8205-01), the August 1982 sampling (TDD #8207-12) and the sampling investigation of April 1983 (TDD #F-4-8304-01). I have discussed the investigation with Dan Harmon, Hydrogeologist, in charge of the monitoring installation; Roger Franklin, Scientist, in charge of the sampling investigation; Phyllis Garmon, Hydrogeologist, with Tennessee Solid Waste; and Don Rima, Chief, Groundwater Section, Tennessee Water Management.

From my review and discussions, I have concluded that the extent, direction, and flow rate of groundwater contamination has not been established from either the SAAD property nor the L&N property. The water quality information provided by the sampling investigation is inconclusive because it is not tied to a clearly defined hydrologic flow regime.

The investigation was biased by the assumption that Croft Spring was the principle discharge point for all contaminants. Information from the sampling investigations does not clearly support that assumption. Groundwater has been contaminated but the discharge route has not been discovered.

I recommend that an improved groundwater study be performed before the effectiveness of a planned removal is evaluated and assurances of public safety made. However, I do not recommend delaying the removal of contaminants and clean-up of the SAAD site. The sources of the groundwater contamination should be eliminated as soon as feasible.

An improved groundwater study would involve the following:

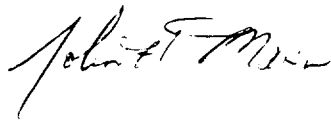
1. A tracer study at both L&N and SAAD properties in an attempt to determine discharge points.
2. A complete inventory of all water wells within a 1 mile radius of the SAAD site.
3. A determination of the local geologic structure. Does a syncline exist as proposed by USGS?
4. A hydrometeorological study that correlates storm events with water level changes.
5. A more detailed geophysical evaluation of the areas west and east of the SAAD property to determine if any major solution channels are evident.

The karst hydrogeology of the area makes groundwater contamination studies extremely complex. Karst hydrogeology also provides mechanisms for piping large quantities of contaminants directly to wells, springs and streams. This contaminant piping is a potential hazard to public health and the environment and requires that a complete groundwater study be performed.

The following comments are directed at improving the reviewed reports:

1. Table #1: The water levels in measurements should be either expressed as true elevation above MSL or reference points given to measurement.
2. The lithologic descriptions of the individual monitoring wells do not clearly indicate when the top of the Hermitage was encountered for wells #7, #5, #4, and #3 though the cross sections illustrate the Hermitage at the bottom of each well.

I will be happy to assist you with any aspect of the groundwater problem at this site.



John Mann